

Exploring Aeronautics			
2009 Science Revised June 2010			
Learning Standards			
Washington Science Revised June 2010			
Grades 4-5			
Activity/Lesson	State	Standards	
Fundamentals of Aeronautics (145-176)	WA	SCI.4-5.2.4-5 INQB.1	Given a research question, plan an appropriate investigation, which may include systematic observations, field studies, models, open-ended explorations, or controlled experiments.
Fundamentals of Aeronautics (145-176)	WA	SCI.4-5.2.4-5 INQB.2	Work collaboratively with other students to carry out a controlled experiment, selecting appropriate tools and demonstrating safe and careful use of equipment.
Wings(177-208)	WA	SCI.4-5.3.4-5 APPE.1	Use suitable tools, techniques, and materials to make a drawing or build a model or prototype of the proposed design.
Scientific Method(124-144)	WA	SCI.4-5.2.4-5 INQA.1	Identify the questions being asked in an investigation. Gather scientific evidence that helps to answer a question.
Scientific Method(124-144)	WA	SCI.4-5.2.4-5 INQB.1	Given a research question, plan an appropriate investigation, which may include systematic observations, field studies, models, open-ended explorations, or controlled experiments.
Scientific Method(124-144)	WA	SCI.4-5.2.4-5 INQB.2	Work collaboratively with other students to carry out a controlled experiment, selecting appropriate tools and demonstrating safe and careful use of equipment.
Scientific Method(124-144)	WA	SCI.4-5.2.4-5 INQC.1	Conduct or critique an experiment, noting when the experiment might not be fair because things that might change the outcome are not kept the same.
Scientific Method(124-144)	WA	SCI.4-5.2.4-5 INQD.1	Gather, record, and organize data using appropriate units, tables, graphs, or maps.
Scientific Method(124-144)	WA	SCI.4-5.2.4-5 INQG.1	Generate a conclusion from a scientific investigation and show how the conclusion is supported by evidence and other scientific principles.
Scientific Method(124-144)	WA	SCI.4-5.2.4-5 INQH.2	Communicate to peers the purpose, procedure, results, and conclusions of an investigation.
Scientific Method(124-144)	WA	SCI.4-5.2.4-5 INQH.3	Respond non-defensively to comments and questions about their investigation.
Scientific Method(124-144)	WA	SCI.4-5.2.4-5 INQH.4	Discuss differences in findings and conclusions reported by other students.
Exploring Aeronautics			
2009 Science Revised June 2010			
Learning Standards			
Washington Science Revised June 2010			
Grades 6-8			
Activity/Lesson	State	Standards	

Fundamentals of Aeronautics (145-176)	WA	SCI.6-8.2.6-8 INQB.1	Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.
Fundamentals of Aeronautics (145-176)	WA	SCI.6-8.2.6-8 INQC.1	Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.
Wings(177-208)	WA	SCI.6-8.3.6-8 APPD.1	Define a problem that can be solved by technological design and identify criteria for success.
Wings(177-208)	WA	SCI.6-8.3.6-8 APPF.2	Present the recommended design using models or drawings and an engaging presentation.
Wings(177-208)	WA	SCI.6-8.4.6-8 PS1A.1	Measure the distance an object travels in a given interval of time and calculate the object's average speed, using $S = d/t$. (e.g., a battery-powered toy car travels 20 meters in 5 seconds, so its average speed is 4 meters per second).
Wings(177-208)	WA	SCI.6-8.4.6-8 PS1A.2	Illustrate the motion of an object using a graph, or infer the motion of an object from a graph of the object's position vs. time or speed vs. time.
How an Airplane Flies	WA	SCI.6-8.4.6-8 PS1C.2	Given a description of forces on an object, predict the object's motion.
How an Airplane Flies	WA	SCI.6-8.4.6-8 PS1D.1	Given two different masses that receive the same unbalanced force, predict which will move more quickly.
How an Airplane Flies	WA	SCI.6-8.4.6-8 PS2F.1	Apply the concept of conservation of mass to correctly predict changes in mass before and after chemical reactions, including reactions that occur in closed containers, and reactions that occur in open containers where a gas is given off.
The Activity Center	WA	SCI.6-8.2.6-8 INQB.1	Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.
The Activity Center	WA	SCI.6-8.2.6-8 INQD.1	Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables. Determine which variables should be kept the same (controlled), which (independent) variable should be systematically manipulated, and which responding (dependent) variable is to be measured and recorded. Report any variables not controlled and explain how they might affect results.
Science of Flight	WA	SCI.6-8.2.6-8 INQC.2	Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.

Science of Flight	WA	SCI.6-8.2.6-8 INQD.1	Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables. Determine which variables should be kept the same (controlled), which (independent) variable should be systematically manipulated, and which responding (dependent) variable is to be measured and recorded. Report any variables not controlled and explain how they might affect results.
Science of Flight	WA	SCI.6-8.2.6-8 INQE.1	Create a model or simulation to represent the behavior of objects, events, systems, or processes. Use the model to explore the relationship between two variables and point out how the model or simulation is similar to or different from the actual phenomenon.
Science of Flight	WA	SCI.6-8.2.6-8 INQF.1	Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).
Science of Flight	WA	SCI.6-8.2.6-8 INQG.1	Prepare a written report of an investigation by clearly describing the question being investigated, what was done, and an objective summary of results. The report should provide evidence to accept or reject the hypothesis, explain the relationship between two or more variables, and identify limitations of the investigation.
Science of Flight	WA	SCI.6-8.2.6-8 INQH.1	Recognize flaws in scientific claims, such as uncontrolled variables, over-generalizations from limited data, and experimenter bias.
Science of Flight	WA	SCI.6-8.2.6-8 INQI.1	Demonstrate ethical concerns and precautions in response to scenarios of scientific investigations involving animal experiments, research in natural ecosystems, and studies that involve human subjects.
Science of Flight	WA	SCI.6-8.3.6-8 APPC.1	Give examples to illustrate how scientists have helped solve technological problems (e.g., how the science of biology has helped sustain fisheries) and how engineers have aided science (e.g., designing telescopes to discover distant planets).
Science of Flight	WA	SCI.6-8.3.6-8 APPD.1	Define a problem that can be solved by technological design and identify criteria for success.
Science of Flight	WA	SCI.6-8.3.6-8 APPF.1	Test the best solution by building a model or other representation and using it with the intended audience. Redesign as necessary.
Science of Flight	WA	SCI.6-8.3.6-8 APPF.2	Present the recommended design using models or drawings and an engaging presentation.

Integrating with Aeronautics	WA	SCI.6-8.1.6-8 SYSE.1	Measure the flow of matter into and out of an open system and predict how the system is likely to change (e.g., a bottle of water with a hole in the bottom, an ecosystem, an electric circuit).
Integrating with Aeronautics	WA	SCI.6-8.2.6-8 INQC.1	Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.
Integrating with Aeronautics	WA	SCI.6-8.2.6-8 INQC.2	Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.
Integrating with Aeronautics	WA	SCI.6-8.4.6-8 PS1A.2	Illustrate the motion of an object using a graph, or infer the motion of an object from a graph of the object's position vs. time or speed vs. time.
Integrating with Aeronautics	WA	SCI.6-8.4.6-8 PS1B.1	Demonstrate and explain the frictional force acting on an object with the use of a physical model.
Integrating with Aeronautics	WA	SCI.6-8.4.6-8 PS1C.1	Determine whether forces on an object are balanced or unbalanced and justify with observational evidence.
Integrating with Aeronautics	WA	SCI.6-8.4.6-8 PS1C.2	Given a description of forces on an object, predict the object's motion.
Intro to Aeronautics (109-123)	WA	SCI.6-8.2.6-8 INQD.1	Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables. Determine which variables should be kept the same (controlled), which (independent) variable should be systematically manipulated, and which responding (dependent) variable is to be measured and recorded. Report any variables not controlled and explain how they might affect results.
Intro to Aeronautics (109-123)	WA	SCI.6-8.2.6-8 INQF.1	Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).
Intro to Aeronautics (109-123)	WA	SCI.6-8.2.6-8 INQG.1	Prepare a written report of an investigation by clearly describing the question being investigated, what was done, and an objective summary of results. The report should provide evidence to accept or reject the hypothesis, explain the relationship between two or more variables, and identify limitations of the investigation.
Intro to Aeronautics (109-123)	WA	SCI.6-8.3.6-8 APPD.1	Define a problem that can be solved by technological design and identify criteria for success.
Scientific Method(124-144)	WA	SCI.6-8.2.6-8 INQB.2	Propose a hypothesis, give a reason for the hypothesis, and explain how the planned investigation will test the hypothesis.

Scientific Method(124-144)	WA	SCI.6-8.2.6-8 INQD.1	Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables. Determine which variables should be kept the same (controlled), which (independent) variable should be systematically manipulated, and which responding (dependent) variable is to be measured and recorded. Report any variables not controlled and explain how they might affect results.
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